
APHL
2004 Year in Review

"Friends say to me, 'I'm sure glad you're running the infectious disease lab in New Mexico. We can really sleep better at night.'"

Debra S. Horensky, MD
Chief, Biological Sciences Bureau
New Mexico Public Health Laboratory

Public Health Laboratories: Quietly Protecting the Nation

It is difficult to tout the achievements of the nation's public health laboratories, since at their best they are defined by tragedies that never occur. This past year, an unexpected shortage of newborn screening kits could have meant that a child with phenylketonuria would not have been tested and therefore not diagnosed, resulting in devastating and irreparable health effects. But that never happened, because the Association of Public Heath Laboratories (APHL) and its members intervened with the federal government and the manufacturer, and newborn screening went on. (*No story there.*)

Similarly, ongoing food safety surveillance led laboratory scientists to spot an *E. coli* outbreak-in-the-making. Quick analysis and reporting to public health partners led the US Department of Agriculture to act, and the source of the outbreak—740,000 pounds of frozen meat that had been sold door-to-door—was recalled before it could be consumed by thousands of Americans. (*Again, no story.*)

Other important laboratory work is intended to prepare US cities, townships and parishes for crises we fervently hope will never occur: chemical and biological terrorism, pandemic influenza and emerging diseases, to name a few. But should any of these arise, it's good to know that public health laboratories are set to respond. Our labs will be ready. (*But once more, no story.*)

Perhaps the best compliment a public health laboratory scientist can receive is echoed in the words of Debra S. Horensky, MD, Chief, Biological Science Bureau at the public health laboratory in Albuquerque, New Mexico. Asked why she entered the field of public health laboratory practice she said:

"I find it satisfying knowing that the work I'm doing is serving a group of people that really doesn't have a voice, population-based rather than patient-based. Friends say to me, 'I'm sure glad you're running the infectious disease lab in New Mexico. We can really sleep better at night.'"

That's our goal at APHL: to assure that Americans can rest knowing that public health laboratories are on the alert 24/7 to prevent diseases and counteract events that could impact their health and safety.

This report highlights some of our activities over the past year to strengthen laboratory systems at home and abroad. Many thanks to the Centers for Disease Control and Prevention (CDC) for technical guidance and funding and to other federal partners in the Department of Homeland Security, Environmental Protection Agency, Food and Drug Administration, Health Resources and Services Administration and US Department of Agriculture for supporting our work in innumerable ways.

For more information on APHL activities—in calendar year 2004 and beyond—please visit our Web site at www.aphl.org.

Sincerely,

Paul Kimsey, PhD
President

Scott J. Becker, MS
Executive Director

On Call and Ready to Roll

SARS. Terrorism. Power failures. Bird flu. No matter what the crisis *du jour*, public health laboratories must not be caught off guard. Indeed, every health threat and every scare help public health laboratories to hone their emergency response skills and better anticipate and prepare for the next crisis.

The year 2004 brought many occasions for laboratories to test their strengths and sharpen their response strategies. Thanks to their and the association's diligent work, at least one potentially life-threatening emergency was resolved before it reached crisis proportions. All-in-all public health laboratories now stand better poised to react to a multitude of threats, ranging from chemical exposures to emerging infectious disease.

Quick Action Safeguards Babies

The least likely emergency of the year was also the first. On February 4, 2004, the US Food and Drug Administration (FDA) seized thousands of newborn screening test kits from an Ohio plant, citing regulatory concerns. This action triggered scattered shortages of test kits across the country, threatening newborn screening programs in several states. In 13 days the Texas public health laboratory, for example, would exhaust supplies to test babies for phenylketonuria and galactosemia—disorders that lead to mental retardation or even death if not detected and treated soon after birth.

While public health laboratories explored extraordinary options to continue screening infants, Association of Public Heath Laboratories (APHL) intervened with the FDA and ultimately averted the looming crisis; by mid-month the agency agreed to release the test kits for use with special quality control safeguards. Since then APHL—through its Newborn Screening and Genetics in Public Health Committee—has taken steps to assure that newborn screening programs will never again be threatened by natural *or* man-made disasters. Contingency plans include agreements with back-up laboratories for emergency newborn testing, a listserv to improve communication among newborn screening laboratories, and advocacy towards a possible national stockpile of newborn screening reagents.

Developing a Chemical Terrorism Network

In 2003, APHL's Chemical Terrorism Project released a report, *Ready or Not…*, alerting policymakers to serious deficiencies in the nation's ability to respond to a chemical terror attack. Focused advocacy on this homeland security gap captured lawmakers' attention. In 2004

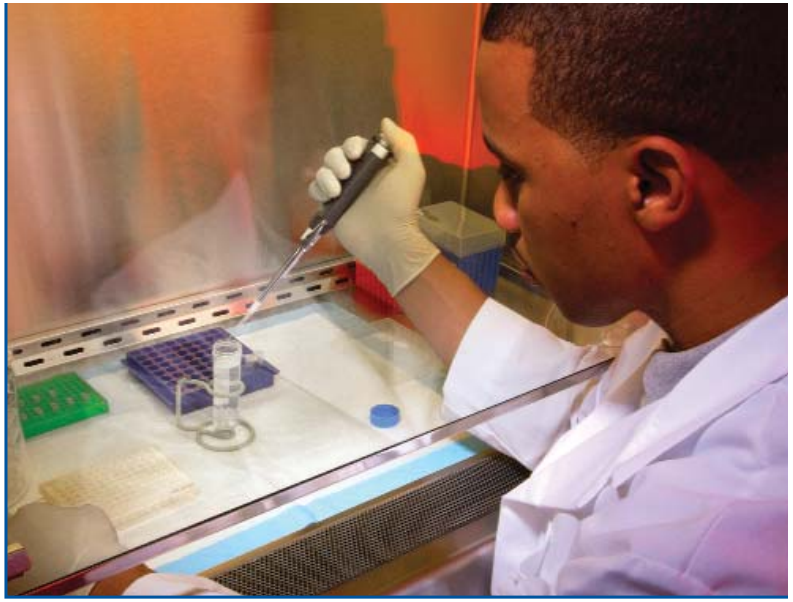
David Sue, APHL/CDC research fellow entering biosafety level 2 laboratory at the Centers for Disease Control and Prevention.

"I OPERATE IN A CONSTANT STATE OF RE

public health laboratories received funding under Focus Area D of the CDC Cooperative Agreement on Public Health Preparedness and Response for Bioterrorism dedicated to chemical terrorism readiness. Today all of the state public health laboratories in the nation's *Laboratory Response Network (LRN)*—a chain of laboratories with enhanced terrorism response capabilities—have the resources to safely receive, pack and ship human specimens that may contain chemical agents. Forty-one LRN laboratories have been trained to test specimens for cyanide and toxic metals. Five LRN laboratories can also test for a panel of mustard agents and nerve agents like sarin or VX. APHL is now conducting a follow-up survey to gauge the full impact of chemical terrorism funding and to document any remaining laboratory needs.

Measuring Laboratory Capacity

How much testing can public health laboratories do in response to a bioterrorism or chemical terrorism event? While the question seems simple enough, the answer is anything but. It depends on the type of testing to be done, available equipment, the characteristics of a test and the type of samples to be tested. But simple or not, the answer is critically important for emergency planning. To tackle this complex issue, APHL and the CDC convened a working group to devise a means to assess public health laboratories' routine testing capacity, as well as their so-called *surge capacity*—the volume of specific tests a laboratory can perform in an emergency situation, with substantial operational changes and using all resources available. CDC officials will use the data to calculate a base level of bioterrorism testing reagents to maintain in a national repository.



APHL/CDC fellow Kumapley Lartevi working at a biosafety cabinet.

Speeding the Deployment of New Lab Tests

When regulations meant to protect Americans instead place them at risk, something is wrong. As government officials now agree, something *was* wrong with the federal rule prohibiting laboratories from using new diagnostic tests until stringent quality control requirements could be met. Under normal circumstances the rule made sense. But public health laboratories are now being called upon to implement new tests under emergency circumstances, such as the SARS outbreak of 2003, when the necessary controls are not readily available. Thanks to an effort spearheaded by APHL in partnership with the CDC and Centers for Medicare & Medicaid Services, the requirements have been amended. Laboratories can now temporarily deploy newly developed tests during crises using alternate quality control methods when it is impossible to meet the original requirements of the law. This means that public health laboratories can respond more rapidly to protect Americans from the next emerging disease to come our way.

"…ADINESS; WHEN I PICK UP THE PHONE, I NEVER KNOW WHAT TO EXPECT."

Eric C. Blank, DrPH
Director
Missouri State Public Health Laboratory

Discerning Patterns in Data for Rapid

Public health laboratories analyze individual test results. But that is not all they do. They compare and cross-reference data in meaningful ways to answer complex questions. For example, a convergence of data from the New Mexico Office of the Medical Investigator, Indian Health Service and public health laboratory led to the detection of an outbreak of Hantavirus. Previously only sporadic cases had been identified in the US. In 2004, similarities among a few cases of *E. coli* infection scattered across four states ultimately led the US Department of Agriculture to recall over 740,000 pounds of tainted beef, forestalling a major outbreak.

Missy Yungclas, Lead Microbiologist, Virology/Immunology Section, Oregon State Public Health Laboratories, examining tissue culture tubes.

Until recently, however, public health laboratories have had to track and transmit the results of cutting edge laboratory tests using largely obsolete laboratory information management systems (LIMS), a process that hinders and delays vital data-sharing. Thus, it is one of Association of Public Heath Laboratories' (APHL) highest priorities to bring modern information technology to all public health laboratories by 2010. Last year the association made great strides toward this goal:

Releasing the *Public Health LIMS Design Document*, a blueprint that laboratories can use to develop LIMS software that is interoperable across laboratories at the local, state and national levels. After an extensive development process, public health laboratories were eager for the information. Within a month of posting on the APHL Web site, there were over 13,000 downloads of individual design sections.

Co-sponsoring the 2nd annual Public Health Information Network (PHIN) conference. The 1,300 attendees discussed initiatives to develop the public health laboratory IT workforce; the use of integrated health information systems to aid laboratory diagnosis and reduce medical errors; and strategies to improve the integration of laboratory information systems.

APHL aims to see all public health laboratories equipped with modern laboratory information management systems capable of amalgamating data from a wide variety of sources, reporting test results in real-time, and helping laboratories generate new knowledge to drive public health activities.

"The big push for modern infor
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we do; for example, alerting p
congenital disorders."

) RESPONSE

Joyce Mayo, Pediatric Biochemistry, Bureau of Laboratories, Pennsylvania Department of Health.

APHL released the Public Health LIMS Design Document, an online tool for development of laboratory information management software.

MATION TECHNOLOGY IN THE LAB HAS BEEN EMERGENCY RESPONSE.
NT. BUT INFORMATION MANAGEMENT SYSTEMS IMPACT EVERYTHING
PHYSICIANS TO FOLLOW UP ON CHILDREN IDENTIFIED WITH CRITICAL

LOU TURNER, DRPH, HCLD
DIRECTOR
NORTH CAROLINA STATE LABORATORY OF PUBLIC HEALTH

APHL and Partners, Acting in Tan

Public health laboratories have always worked with a multitude of government clients—such as sexually transmitted disease programs—and with private clin on whom they depend for microbial isolates (taken from patients) that are the basis of ongoing disease surveillance. Increasingly, they and the association ar net, recognizing that there is truly strength in numbers. In 2004:

• Association of Public Health Laboratories (APHL) members voted to open membership to local and environmental health laboratories, a move that positions the association for new partnerships and growth. In 2005 it will begin outreach to prospective members.

• A team of APHL members released a report under the auspices of the National Public Health Leadership Institute outlining strategies public health laboratories can use to correct the growing imbalance between laboratory funding and public health mandates. The report outlines four types of partnerships—such as multi-state laboratory consortia and relationships with unconventional public and private sector entities—that can expand the technologies and expertise available to any one laboratory.

• APHL awarded a total of $250,000 to six state laboratories to develop innovative and transferable methods to improve food safety. Virginia, for example, aims to improve surveillance of foodborne illness by encouraging more private sector submissions of patient specimens containing foodborne microbes. The Virginia state laboratory will distribute specimen collection kits and prepaid mailing labels to clinical laboratories to make submissions as easy as possible.

• APHL undertook several activities to strengthen PulseNet—the CDC network of public health laboratories that perform a DNA "fingerprinting" method on foodborne bacteria to speed the detection of outbreaks. The association worked with PulseNet laboratories to correct technical problems, improve communications and expedite the certification process for new network members. APHL also co-sponsored the *8th Annual PulseNet Update Meeting* in San Diego, CA.

• APHL bolstered ties with its Canadian sister organization—the Canadian Public Health Laboratory Network (CPHLN). The two organizations signed a memorandum-of-understanding to work jointly in six areas, ranging from advocacy to workforce development to technical partnerships. APHL and CPHLN are already working with the World Health Organization to develop an *e*-directory of public health laboratory networks.

• The association collaborated with the CDC to train laboratory scientists from 32 states to implement new technologies for influenza detection and subtyping. These laboratories can now support surveillance for new and potential pandemic strains.

DEM

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e casting a wider

The National Center for HIV, STD and TB Prevention (NCHSTP) presented its 2004 award for outstanding service to APHL. This marked the first time that an external organization had received the award. Rosemary Humes, APHL's director of infectious disease & emergency preparedness, accepted the award from Dr. Janet Collins, acting director of NCHSTP, on behalf of the association.

Speakers at ASTHO/APHL co-located annual meetings in Minneapolis, MN, September 2004, (from left to right) George E Hardy, Jr. MD, MPH, Executive Director, Association of State and Territorial Health Officials (ASTHO); Jan K. Malcolm, Senior Program Officer, Robert Wood Johnson Foundation; Norman A. Crouch, PhD, ABMM, Director, Public Health Laboratory, Minnesota; and Scott J. Becker, MS, Executive Director, APHL.

Opening of exhibit on PulseNet system at CDC museum in Atlanta. (left to right) Balasubra Swaminathan, PhD, chief, Foodborne and Diarrheal Disease Laboratory; Tanja Popovic, MD, PhD, FAAM, acting associate director for science, Office of Health Policy and Technology Transfer; and Scott J. Becker, MS, APHL executive director.

Wanted: Skilled Laboratory Scientist

Kerry Pollard studying bacteria at the Bureau of Laboratories, Pennsylvania Department of Health.

Running a public health laboratory during a major infectious outbreak or after a terror attack demands that a portion of the workforce be highly skilled. Yet, while public health laboratories are experiencing staffing problems at all levels, high level laboratory scientists are in particularly short supply. APHL studies have documented shortages of laboratory chemists, molecular scientists and food safety microbiologists. The association's 2004 bioterrorism survey, for example, found that 21 of 52 state public health laboratories (including DC and Puerto Rico as *states*) have no full-time, doctoral-level molecular scientist on staff.

Of concern, a 2002 APHL study predicts an average of 13 vacancies in state public health laboratory *director* positions by 2007 (largely due to the retirement of current directors) with few experienced leaders in the pipeline to replace them. Yet the problem of a leadership deficit is not merely speculative or pending. The current APHL membership directory lists five *acting* or *interim* state laboratory directors. One public health laboratory has been trying to recruit a permanent director since late 2002.

With evolving technology, emerging pathogens and new man-made hazards, there has never been a more demanding time for the country's laboratories or a more urgent need for new professionals to enter the field. In 2004, APHL redoubled its efforts to train current professionals and to enlarge the pool of future laboratory leaders.

APHL's fellowship program boosted its recruiting efforts with a vibrant new brochure that was distributed to over 750 university biology departments and career centers, prompting more than 1,000 downloads of the application packet from the APHL Web site within a month.

Emerging Infectious Disease Fellowship Program

The Emerging Infectious Disease Fellowship Program launched its 10th class with 42 scientists-in-training from the US, the Philippines, Kenya, China, Russia and India.

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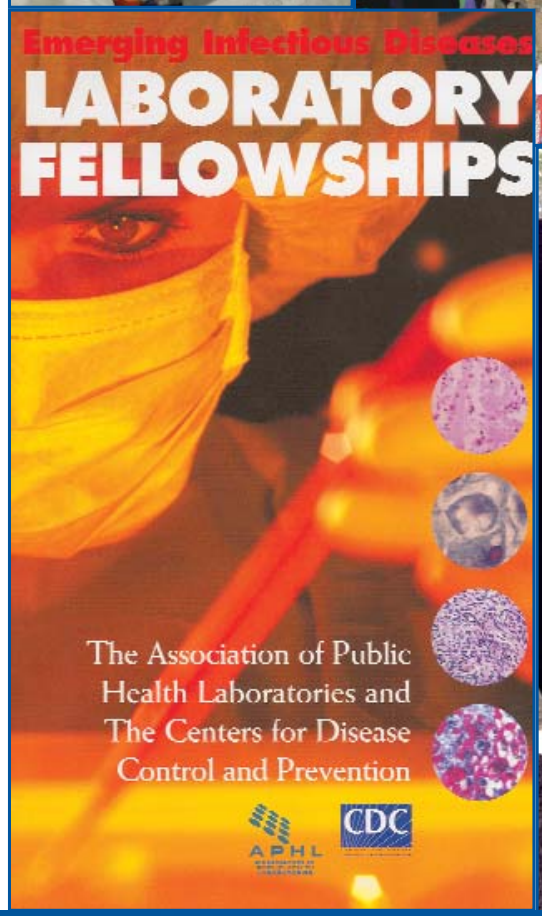
Environmental Health Fellowship Program

The association launched a revamped Environmental Health Fellowship Program with two fellows, studying human exposure to toxic metals in Alaska and drinking water contaminants in Wisconsin. Five environmental health trainees received funding for short-term educational activities.

National Laboratory Training Network

The National Laboratory Training Network celebrated its 15th anniversary with new online services and hands-on training. Since its inception, the network's audience has grown from 3,000 students in 1989 to over 18,000 in 2004. Last year's continuing education topics included molecular diagnostic techniques—the basis of many cutting-edge infectious disease tests—detection of avian influenza, anti-microbial resistance testing and investigating foodborne illness.



Clockwise from left: NLTN anthrax training in New York City; NLTN staff and leaders celebrating the program's 15th anniversary; APHL/CDC fellow Kaitlin Rainwater (left) collecting blood from sentinel chickens for West Nile virus testing; brochure promoting APHL/CDC fellowship program.

National Center for Public Health Laboratory Leadership

APHL's National Center for Public Health Laboratory Leadership:

• Hosted its first orientation for incoming state laboratory directors, an intensive three-day program at the CDC in Atlanta.

• Began work on *A Practical Guide for the Public Health Laboratory Leader*, a manual with management advice for new and seasoned laboratory directors.

• Used the *OARS* team-building program—involving the use of an Olympic rowing shell—to optimize the working relationship among members of APHL's advisory board and a group of new state laboratory directors.

• Fielded the first team of state laboratory directors to attend the National Public Health Leadership Institute—Norm Crouch (MN), David Mills (NM), Susan Neill (TX), and Lou Turner (NC). The team has just released a report outlining strategies to expand laboratory resources.

• Conducted regional leadership forums and skills-building workshops on risk communication, team and leadership building, media relations and grant-writing.

NLTN workshop on detection of rabies, San Antonio, TX.

APHL Fellowship Opens

Ryan Novak, PhD, an APHL EID fellow
promise of public health in the past year, g
unknown febrile illness in Kenya. "After I t
me."

Weeks before Novak's arrival in Kenya, an i
mately killing 12. It was Novak's job, wor
(CDC), to figure out what it was. Presumpt
ed that leptospirosis might be the cause. Bu
ed before the team's arrival implicated water
erally doesn't persist in water without a con
dom survey of the village population and e
the mountains and water drawn from bore

Ultimately, the culprit turned out to be typh
human excreta. But the finding was delayed
for definitive testing. Said Ryan, "Because t
conclusions were made. With appropriate la
to a different microbe."

Ryan, who has completed a doctorate in mic
His fellowship has been pivotal in focusing
public health scientists at the CDC and to
rewarding. I can now see how public health

THE DOOR TO PUBLIC HEALTH

working at CDC's National Center for Infectious Diseases, has witnessed the
oing from a study of leptospirosis in American Samoa to an investigation of an
took this fellowship," he said, "the whole world of public health opened up to

nfection had sickened hundreds of people in the rural village of Chesamisi, ulti-
king as part of a team from the Centers for Disease Control and Prevention
tive laboratory tests performed at the Kenya Medical Research Institute suggest-
t the CDC team wasn't so sure. Results of a preliminary investigation conduct-
as the means of disease transmission; but leptospirosis is animal-borne and gen-
nstant animal source. Novak's team needed more clues. They conducted a ran-
xamined Chesamisi's water sources: local rivers, spring water piped down from
holes.

noid, caused by a bacterium commonly transmitted in water contaminated with
l until villagers' blood specimens could be shipped back to the CDC in Atlanta
he initial investigative team didn't have the laboratory tools it needed, incorrect
aboratory diagnostic techniques available to us, new data emerged that pointed

crobial ecology, has already begun studying for a master's degree in public health.
his interest. "I came from an academic background," he said. "To work with
experience the role of a laboratorian in field investigations has been incredibly
interventions can make a difference in peoples' lives."

APHL/CDC fellow Ryan Novak, PhD, investigating an unknown febrile illness in Kenya.

Seeing Outside the Box

The work of the public health laboratory is constantly changing, reflecting developments in laboratory science and contemporary health risks. Laboratory leaders must look outside the box to manage such change effectively. They must be innovative, thoughtful and technologically savvy to identify the best science and the most valuable business practices and put them into service for public health. In 2004, the Association of Public Heath Laboratories (APHL) and its members tried to do just that.

Boosting Biomonitoring

The number of environmental chemicals that may potentially harm people seems to increase from year to year: arsenic in drinking water, pesticides on produce, mercury and PCBs in fish, diethyl phthalates in shampoos, and many others. Biomonitoring is the laboratory science of measuring how much of which chemicals actually end up in human fluids or tissues. In 2004 APHL published *Biomonitoring: Measuring Chemicals in People* to introduce this relatively new science and to discuss the potential contributions of state-based biomonitoring programs. California scientists, for example, would like to study the levels of environmental chemicals in the blood of infants with birth defects. Other association efforts to promote biomonitoring included a regional meeting for state laboratory directors and legislators in the Upper Midwest, and a briefing for health and environmental organizations in Washington, DC. A small increase in federal funding for state biomonitoring programs is a positive sign, but more support is needed.

Bacteriologist Stephen Swanson at the Bureau of Laboratories, Pennsylvania Department of Health.

Looking Locally

APHL released the findings of the first-ever study of *local* public health laboratories. The roughly 2,000 local public health laboratories in the US serve jurisdictions ranging from small rural communities to large metropolitan areas. Together they comprise a critical, though often overlooked, public health asset. APHL found that about two-thirds of local public health agencies rely on in-house laboratories for at least some of their testing and that local and state public health laboratories face similar challenges: unstable funding, inadequate information technology support and workforce shortages. Strengthening local public health laboratories is essential to national emergency preparedness.

Trouncing TB

In May, APHL's Tuberculosis Task Force published its final report, *The Future of TB*

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the laboratory's role is in the wh

Laboratory Services. The Task Force cautioned against complacency in the face of an overall decline in TB, noting that 15,000 new cases still occur annually, millions of Americans have latent infection with risk of future disease, and multi-drug-resistant TB continues to spread. The report recommends an integrated approach involving clinicians, laboratories, and TB controllers in each state—a departure from the current segmented approach—to ensure rapid diagnosis and treatment of TB patients and ultimately to eliminate the disease in the US. A work group will pursue next steps.

Linking Laboratories

The CDC—through APHL—awarded roughly $50,000 to each of ten states to carry out novel new activities to improve ties between the state public health laboratory and other laboratories in the state. The Nebraska public health laboratory, for example, is introducing a device called STATPack® that will enable secure, real-time video transmission of laboratory images to the public health laboratory to speed confirmatory diagnosis of dangerous microbes and hasten emergency response activities.

Facing Forward

APHL adopted a new logo, developed with input from association members, public health partners and other stakeholders. The design combines the APHL acronym with a group of dots that can represent data, populations, pathogens or even a 96 well plate. The association is redesigning its major publications to incorporate the new logo and to better reflect the forward-looking laboratory science practiced by its members.

"ORY LEADERSHIP IS VISION, VISION, VISION. YOU HAVE TO SEE WHAT
HOLE NATIONAL SYSTEM; TO SEE OUTSIDE THE BOX."

NORMAN CROUCH, PHD
DIRECTOR
MINNESOTA PUBLIC HEALTH LABORATORY

Easing Misery in the Global Village

-While the world tried in vain to comprehend the tragic loss of 150,000+ lives to a tsunami in Southeast Asia in the last days of 2004, much less attention was focused on the routine suffering that is played out daily across the globe. ***Africa, for example, loses 150,000 children every month to malaria alone.***

What will it take to battle against the world's most persistent and devastating infectious diseases, particularly in developing nations? One requirement is a public health system to monitor and investigate outbreaks and plan disease control activities. Increasingly, world leaders are recognizing that the public health laboratory is the keystone of that system. That is, if laboratories do not function, entire public health systems are no longer viable and medical services are compromised as well.

Take HIV, for instance. Laboratory tests are the most objective basis for determining who is HIV-positive and who is not, who is responding to therapy and who is not. Laboratory data can also answer broader questions: What is the burden of infection among pregnant women and other groups? How long do high-risk individuals remain virus free? This kind of information is critical for deciding the geographic and demographic focus of prevention and treatment efforts within countries. When laboratories can't provide the answers, clinicians and policymakers turn to less accurate sources of information.

Fortunately, the Association of Public Health Laboratories (APHL) and its members *know* laboratories and are increasingly taking their expertise overseas. With funding from the President's Emergency Plan for HIV/AIDS Relief and from the CDC's Global AIDS Program, APHL sent 20 laboratory experts to 14 countries last year. Although the major focus of these efforts has been AIDS prevention and control, laboratory enhancements, quality assurance systems, and skills training will benefit testing programs for other diseases as well (and may well speed the detection of emerging illnesses).

Yet, even as on-site technical assistance is ramping up laboratories on three continents, APHL recognizes that it lacks the resources to send expert advisors everywhere they are needed. Thus the association has also been working with the World Health Organization and the CDC

Bob Sokolow, APHL member and Kenya country lead, pauses with Kim Lewis and Peter Tukei of the CDC, and Ali Abdilatif of the Kenya National Public Health Laboratory before Dr. Kishov Mandaliyo, pathologist at Coast General Hospital, leads them and associates on a tour at the hospital in Mombassa, Kenya.

"In Botswana alone, routine
HIV infection each year. Com

to develop tools that laboratory leaders can use independently to:

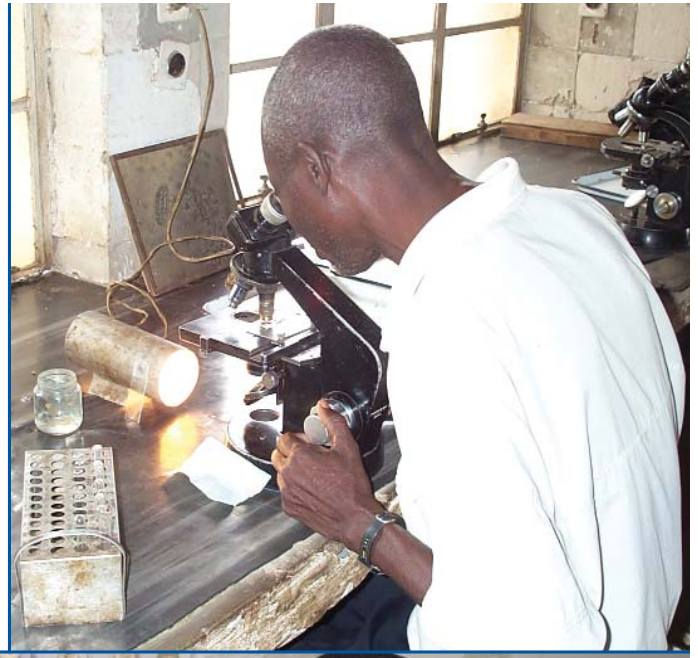
• Calculate the cost of running a sophisticated public health laboratory.

• Determine whether individual laboratories have the facilities, equipment, reagents, personnel and skill sets needed to do the testing necessary to achieve national health goals (for example, to screen high-risk populations for HIV).

• Establish laboratory policies and goals based on core public health laboratory functions that may be unfamiliar to those in nations currently without *any* high-level public health laboratory.

• Train laboratory technicians to perform tuberculosis testing.

The magnitude of need across the world can overwhelm the weak-of-heart. Still, APHL has seen signs of hope in unlikely places: new national HIV rapid testing programs in Botswana and Namibia, for example, and the resumption of operations in Haiti's Ministry of Public Health and Populations laboratory following the wreckage wrought by Hurricane Jeanne.



PRENATAL HIV TESTING AND TREATMENT COULD SPARE 30,000 BABIES FROM MON SENSE AND SOCIAL JUSTICE REQUIRE OUR ACTION. WE MUST SUCCEED."

RALPH TIMPERI, MPH
DIRECTOR
MASSACHUSETTS STATE LABORATORY INSTITUTE

Sharing Knowledge to Save Lives
APHL Advisors Travel the World

Nadine Abiola (consultant) — Haiti.

Rick Alexander, Dave Duet (Contra Costa, CA) — Quality systems in Ethiopia.

Kari Brattegard (South Africa) – Quality systems in Madagascar.

Jane Getchell (DE), **Patricia Clark** (MI), **Patricia Somsel** (MI) — Rapid HIV test systems in Botswana.

Ken Jost (TX) — Quality assessment in Kenya.

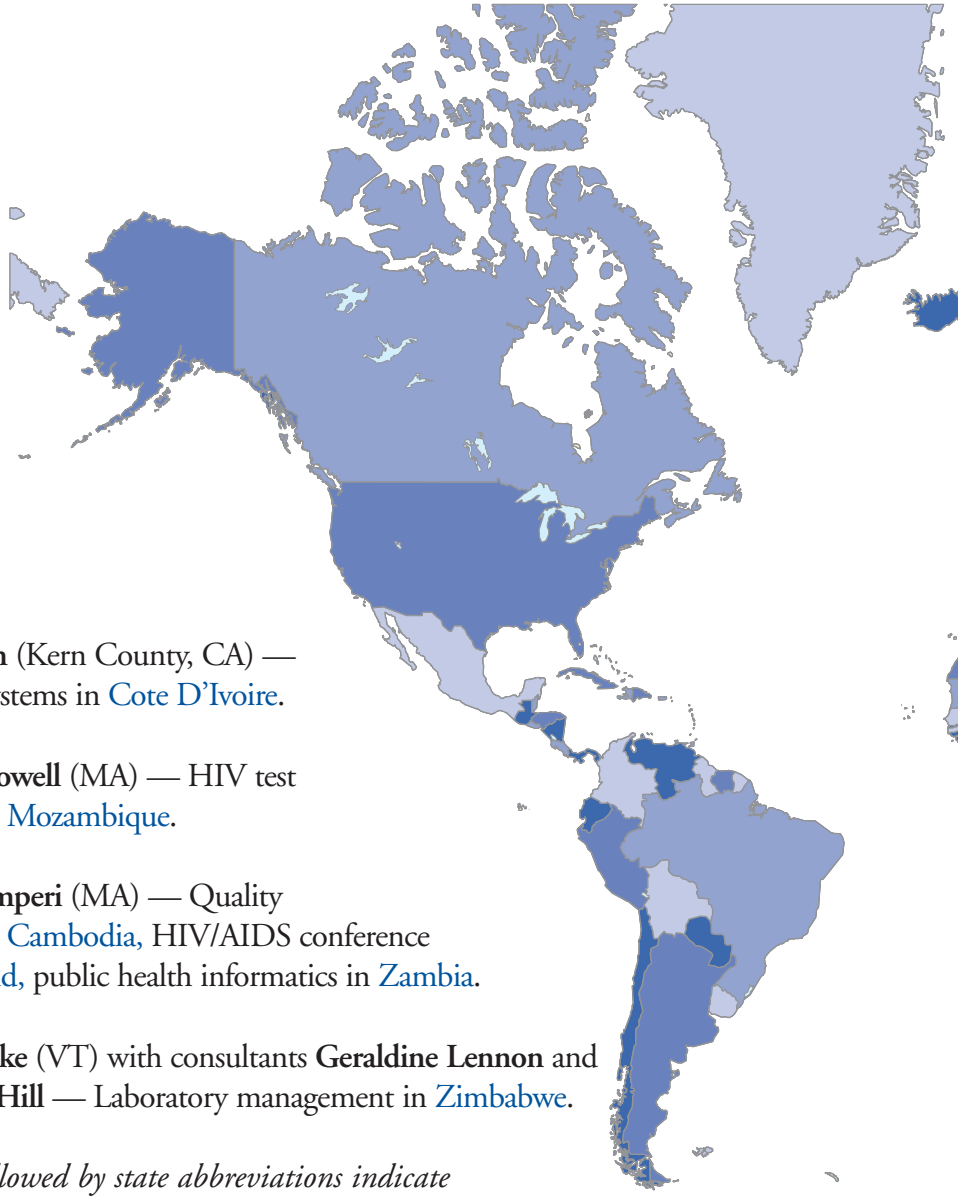
Paul Kimsey (CA), **Scott Becker** (APHL), **Yvette Benjamin** (APHL) — WHO-AFRO Regional HIV-AIDS Public Health Laboratory Network meeting in South Africa.

Leonard LaFazia (RI) — Quality systems in Zimbabwe.

Sally Liska (San Francisco) — Laboratory assessments in Rwanda and Haiti.

Chris Peter (San Diego County, CA) — Laboratory assessment in Mozambique.

Mark Pettigrove, Jr. (San Diego County, CA) — Rapid HIV test systems in Namibia.



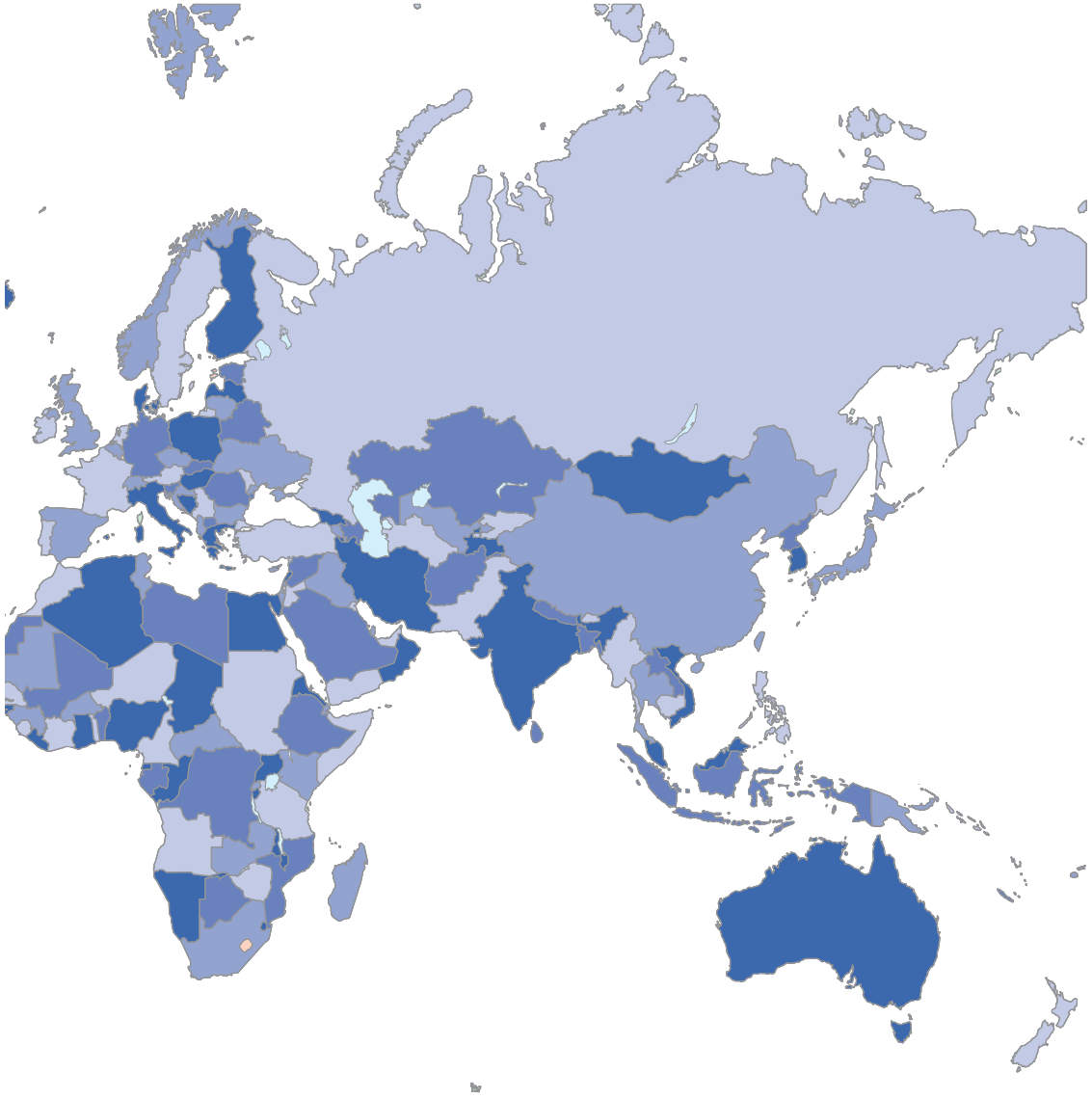
Tom Rush (Kern County, CA) — Quality systems in Cote D'Ivoire.

Marcia Stowell (MA) — HIV test systems in Mozambique.

Ralph Timperi (MA) — Quality systems in Cambodia, HIV/AIDS conference in Thailand, public health informatics in Zambia.

Burt Wilcke (VT) with consultants **Geraldine Lennon** and **Bradford Hill** — Laboratory management in Zimbabwe.

Names followed by state abbreviations indicate advisors from state public health laboratories.



Sowing Hope in Zimbabwe

When Leonard LaFazia, a scientist with Rhode Island's public health laboratory, first visited Zimbabwe's National Reference Microbiology Laboratory (NRML) in Harare, there wasn't much there. Essential laboratory equipment had just been purchased with funding from the Centers for Disease Control and Prevention (CDC), and a staff of seven newly-hired technicians was working on the most elementary screening tests for HIV. In addition to the usual challenges in developing a new laboratory testing program in any country, in politically unstable Zimbabwe, LaFazia said his local colleagues had to deal with a 600% inflation rate, problems safeguarding laboratory supplies, a dysfunctional transportation system, and, of course, the ever-present specter of AIDS. But four years of technical support and a dedicated local staff have made a difference. Today the NRML develops the testing standards for all of Zimbabwe. It performs HIV testing from dry blood spots to whole blood, conducts Western blot confirmatory testing for HIV, validates rapid HIV test kits, oversees all training for rapid HIV testing in rural areas, and performs sophisticated flow cytometry at a level comparable to a US laboratory, handling about 65 CD4/CD8 cell counts per day (to monitor antiretroviral therapy). The laboratory is now preparing for certification by the prestigious International Standards Organization. Said LaFazia, "The people of Zimbabwe are very hopeful."

Fast Forward to 2005

APHL's aims for the coming months are deceptively simple: *communication* and *coordination* among a host of partners, *standardization* of laboratory tools and *resources* for vital laboratory services. The association will continue to advocate for all of these, for all are necessary to achieve its ultimate goal: preserving the health and safety of the American public.

2005 Priorities:

Securing federal support for environmental testing. In 2001 public health laboratories learned that testing environmental samples—air, soil, water, mail, and even dust—is a central part of terrorism response. It is also crucial for responding to chemical spills and similar emergencies.

Developing a national repository of key laboratory testing reagents. Laboratories in the Laboratory Response Network must be ready to test for anthrax, smallpox and other deadly microbes at any moment. Yet they are stymied without adequate standardized testing reagents. Currently there is no funding to support a national repository of these critical laboratory materials at the Centers for Disease Control and Prevention. And reagents cannot be stored permanently on-site at LRN labs because of their limited shelf life. Consider a reagent stockpile a national insurance policy.

Securing funds for expanded newborn screening. Few people have ever heard of medium chain acetyl dehydrogenase (MCAD), but untreated it can kill a baby. MCAD is one of dozens of rare congenital disorders that can now be detected at birth. In fact, the US Department of Health and Human Services is on the verge of releasing recommendations for a standard, core panel of 29 tests—including MCAD—for all state newborn screening programs. Some states now screen for only four or five conditions and adding the new tests will require staff training, costly tandem mass spectrometers and additional laboratory scientists.

Standardizing information technology systems to speed the exchange of laboratory reports among partners in public health and law enforcement agencies. After all, laboratory data is useless if it doesn't get to the people who can act on it.

Growing the public health laboratory workforce. Laboratory-trained chemists, virologists, and molecular scientists are perhaps the rarest laboratory resource of all. But they are, of course, essential to perform routine tests (for infectious disease, newborn screening and more), to communicate and explain laboratory findings to public and private sector partners, and to mount a swift and sustained response to natural or man-made threats.

APHL/CDC fellow Ann Mintie with mentor Sally Liska, DrPH, director, San Francisco Public Health Laboratory.

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